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EXAMINER	
LYONS, MICHAEL A	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,562	YUN ET AL.	
	Examiner	Art Unit	
	MICHAEL A. LYONS	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-95* is/are pending in the application.

4a) Of the above claim(s) *81-93* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-80,94 and 95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *Various*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-80 and 94-95 in the reply filed on April 9, 2008 is acknowledged.

Claims 81-93, therefore, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 9, 2008.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on April 27, 2006; June 21, 2006; August 28, 2006; December 4, 2006; May 18, 2007; November 5, 2007; and June 13, 2008 have been considered by the examiner in accordance with MPEP 609.05(b).

However, if the applicants are aware of a document or section of a document that is highly relevant to patentability, the examiner requests that applicant provide a concise explanation of why the English-language information is being submitted and how it is understood to be relevant. This request is made because of the large number of documents submitted, in particular the over 780 pieces of foreign patents and non-patent literature, many of which are lengthy and complex. See MPEP 609.04(a).

Further, the examiner does not suggest or insinuate that the excessive number of submissions constitute inequitable conduct. However, the relevance of many of the references cannot be ascertained. For instance, in what way is "The Probability of Blindness from Open-angle Glaucoma" by Hattenhauer et al. relevant to the claimed invention? **The examiner invites the applicants to suggest the relevancy of this and other references submitted.** Further, it is

not understood by the examiner how the applicants intend these submissions to aid in furthering prosecution. If the applicants believe that the submitted references are not material, or do not constitute prior art, why has such a burdensome submission been made?

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 80 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

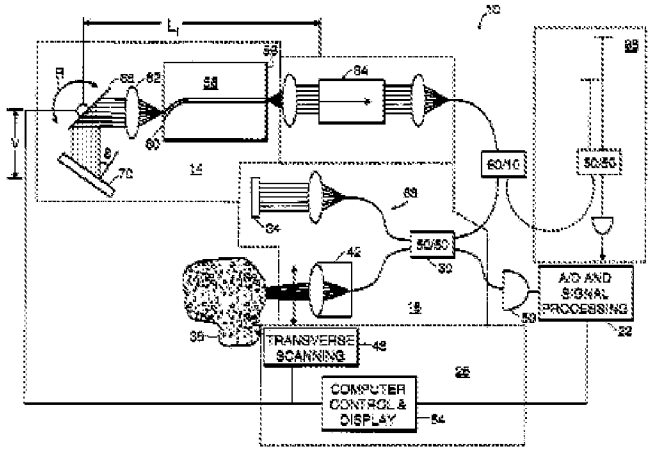
Regarding claim 80, it is unclear to the examiner what the "at least one second arrangement" set forth in the claim is actually capable of. As currently claimed, the second arrangement acts as both a frequency shifter and a detector.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-22, 24-26, 31, 33, and 44-45 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Swanson et al (5,956,355).



Regarding claims 21 and 45, Swanson (Fig. 1) discloses an apparatus (claim 21) and corresponding method (claim 45) comprising at least one first arrangement 14 providing a least one first electro-magnetic radiation to a sample 36 and at least one second electro-magnetic radiation to a reference 34, wherein at least one of the first and second electro-magnetic radiations has a spectrum which changes over time, the spectrum containing multiple differing longitudinal modes (this stems from light source 14 being a tunable laser); and at least one second arrangement 50 detecting an interference between at least one third radiation associated with the at least one first radiation and at least one fourth radiation associated with the at least one second radiation.

As for claim 22, the third radiation is returned from sample 36, the fourth radiation returned from reference 34.

As for claim 24, see computer control and display 54.

As for claims 25-26, see transverse scanning element 46 to scan probe module 42.

As for claim 31, see element 200 in Figure 4, or Figures 2 and 2a.

As for claim 33, see Swanson abstract for the disclosure of a gain medium.

As for claim 44, Swanson inherently discloses a third arrangement for tracking the phase difference between the third and fourth electromagnetic radiations; the interference patterns detected by Swanson are generated by the phase differences between the light beams due to the optical path differences each light beam travels among other effects, making tracking the phase differences a natural part of the interference pattern detection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 4-7, 18-20, 27-30, 71-79, and 94-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al (5,956,355).

Regarding claims 1 and 20, Swanson (Fig. 1) discloses an apparatus (claim 1) and corresponding method (claim 20) comprising a first arrangement (tunable laser 14) providing at least one first electro-magnetic radiation to a sample 36 and at least one second radiation to a

reference 34, wherein a frequency of radiation provided by the at least one first arrangement varies over time (the laser is tunable); and at least one second arrangement 50 detecting interference between at least one third radiation associated with the at least one first radiation and at least one fourth radiation associated with the at least one second radiation.

Swanson, however, fails to disclose the use a non-reflective reference.

In one embodiment of Swanson (that of Figure 4), a partially transmissive reference 44 is employed as a functional equivalent to the fully reflective reference reflector of the embodiment of Figure 1. At the same time, both a non-reflective reference flat with a mirror located behind it in a Michelson interferometer arrangement, or a Mach-Zehnder interferometer arrangement with a transmissive reference arm, operate as non-reflective reference surfaces in a functionally equivalent manner to the embodiment set forth by Figure 1 of Swanson.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a non-reflective reference in the device of Swanson, the motivation being that the use of a non-reflective reference surface is functionally equivalent to using a reflective reference surface, and the same results will be generated by the use of each.

As for claim 2, the third radiation is returned from sample 36, the fourth radiation returned from reference 34.

As for claim 4, see computer control and display 54.

As for claims 5-6, see transverse scanning element 46 to scan probe module 42.

As for claim 7, see detector 50, A/D and signal processing 22.

As for claim 18, Swanson inherently discloses a third arrangement for tracking the phase difference between the third and fourth electromagnetic radiations; the interference patterns

detected by Swanson are generated by the phase differences between the light beams due to the optical path differences each light beam travels among other effects, making tracking the phase differences a natural part of the interference pattern detection.

Regarding claims 19, 71-79, and 94-95 Swanson (Fig. 1) discloses an apparatus (claim 71 and 94) and corresponding method (claim 79 and 95) comprising a first arrangement (tunable laser 14) providing at least one first electro-magnetic radiation to a sample 36 and at least one second radiation to a reference 34; and at least one second arrangement 50 detecting interference between at least one third radiation associated with the at least one first radiation and at least one fourth radiation associated with the at least one second radiation.

Swanson, however, fails to disclose the limitation (also contained in claim 19) wherein at least one of the first and second electro-magnetic radiations has a spectrum whose mean frequency changes substantially continuously over a time at a tuning speed that is greater than 100 Terahertz per millisecond, and further fails to disclose the mean frequency changes (claims 72-73 and 94-95), the instantaneous line width (claim 74), the laser cavity size (claim 75), and the center of the tuning range (claims 76-78).

Swanson, as set forth above, discloses a rapidly tunable laser that is capable of rapid tuning (Swanson abstract). However, while the explicit operational ranges of laser source set forth in the instant claims are not explicitly disclosed in Swanson, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a laser with the specifications set forth in the instant claims, since it has been held that where the general conditions of a claim are met in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claim 27, Swanson discloses the invention as set forth above regarding claim 21, but fails to disclose the use a non-reflective reference.

In one embodiment of Swanson (that of Figure 4), a partially transmissive reference 44 is employed as a functional equivalent to the fully reflective reference reflector of the embodiment of Figure 1. At the same time, both a non-reflective reference flat with a mirror located behind it in a Michelson interferometer arrangement, or a Mach-Zehnder interferometer arrangement with a transmissive reference arm, operate as non-reflective reference surfaces in a functionally equivalent manner to the embodiment set forth by Figure 1 of Swanson.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a non-reflective reference in the device of Swanson, the motivation being that the use of a non-reflective reference surface is functionally equivalent to using a reflective reference surface, and the same results will be generated by the use of each.

As for claims 28-30, Swanson discloses the claimed invention as set forth above regarding claim 21, but fails to disclose the specifics of the variation of the spectrum of the light source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the spectrum variation of the light source to the specifications of the instant claims, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

Claims 3, 8-17, 23, 34-43, and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson (5,956,355) in view of Tearney et al (6,134,003).

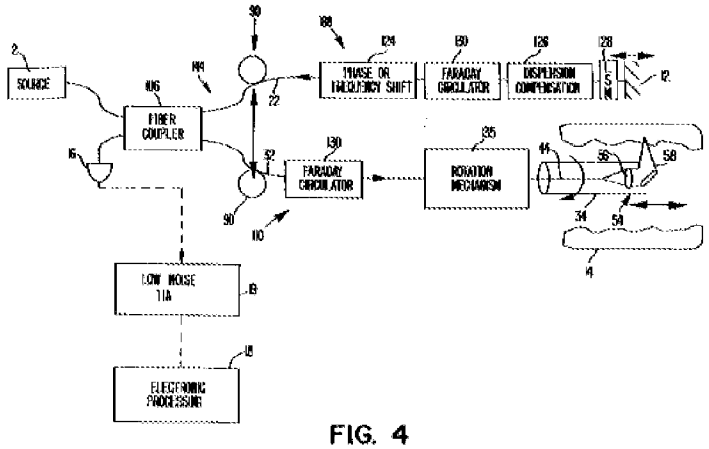


FIG. 4

As for claim 3, Swanson sets forth the claimed invention as disclosed above regarding claim 1, but fails to disclose the frequency shifting of at least one of the beams.

Tearney (Fig. 4), however, discloses frequency shifter 124 disposed in the reference beam.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a frequency shifter to the device of Swanson as per Tearney, the motivation being that the frequency shifter is necessary to shift the intermediate frequencies as is required when performing measurements of an entire cavity via the rotation of the measurement probe (see Col. 13, lines 25-37 of Tearney).

As for claim 8, see detector 50, A/D and signal processing 22 of Swanson.

As for claims 9-10, the combined device discloses the claimed invention of claim 8, but fails to disclose the operational ranges of the electrical filter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the electrical filter to the operational profile of the instant claims, sine it has been held that where the general conditions of

a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claim 11, Swanson sets forth the invention as disclosed above regarding claim 5, but fails to disclose the probe having a rotary junction and a fiber-optic catheter.

Tearney, however, discloses an interferometeric system with a rotation mechanism 135 and a fiber-optic catheter 54.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a rotation enabled fiber-optic catheter as per Tearney in the device of Swanson, the motivation being that the catheter will allow for both rotational and longitudinal scanning of an object being measured, and therefore both rotational and longitudinal scanning of an image (Tearney abstract).

As for claim 12, the combined device sets forth the invention of claim 11, but fails to disclose the rotation speed of the catheter. It would have been obvious to one having ordinary skill in the art at the time the invention was made, however, to set the rotation speed to be higher than 30 revolutions per second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As for claim 13, Tearney further discloses Faraday rotators 130 as a polarization modulator.

As for claim 14, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 15, Tearney further discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

As for claim 16, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 17, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417, and also further discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

As for claim 23, Swanson sets forth the claimed invention as disclosed above regarding claim 21, but fails to disclose the frequency shifting of at least one of the beams.

Tearney (Fig. 4), however, discloses frequency shifter 124 disposed in the reference beam.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a frequency shifter to the device of Swanson as per Tearney, the motivation being that the frequency shifter is necessary to shift the intermediate frequencies as is required when performing measurements of an entire cavity via the rotation of the measurement probe (see Col. 13, lines 25-37 of Tearney).

As for claim 34, see detector 50, A/D and signal processing 22 of Swanson.

As for claims 35-36, the combined device discloses the claimed invention of claim 34, but fails to disclose the operational ranges of the electrical filter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the electrical filter

to the operational profile of the instant claims, sine it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claim 37, Swanson sets forth the invention as disclosed above regarding claim 25, but fails to disclose the probe having a rotary junction and a fiber-optic catheter.

Tearney, however, discloses an interferometeric system with a rotation mechanism 135 and a fiber-optic catheter 54.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a rotation enabled fiber-optic catheter as per Tearney in the device of Swanson, the motivation being that the catheter will allow for both rotational and longitudinal scanning of an object being measured, and therefore both rotational and longitudinal scanning of an image (Tearney abstract).

As for claim 38, the combined device sets forth the invention of claim 37, but fails to disclose the rotation speed of the catheter. It would have been obvious to one having ordinary skill in the art at the time the invention was made, however, to set the rotation speed to be higher than 30 revolutions per second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As for claim 39, Tearney further discloses Faraday rotators 130 as a polarization modulator.

As for claim 40, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 41, Tearney further discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

As for claim 42, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 43, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417, and also further discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

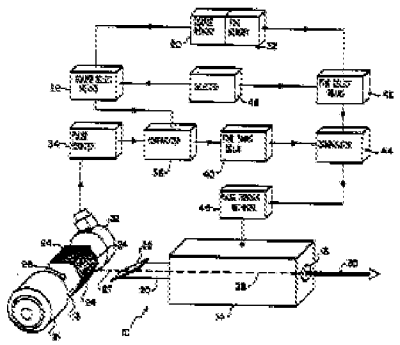
Regarding claim 80, Swanson (Fig. 1) discloses an apparatus comprising at least one first arrangement (tunable laser 14) providing at least one first electro-magnetic radiation to a sample 36 and at least one second radiation to a reference 34, the frequency of the radiation varying over time (inherent to the operation of a tunable laser); an interferometer (entire device) interfering the first and second radiations (assisted by beam coupler 30) to produce an interference signal, and an arrangement 50 for detecting the interference.

Swanson, however, fails to disclose an arrangement for frequency shifting one of the first and second radiations.

Tearney (Fig. 4), however, discloses frequency shifter 124 disposed in the reference beam.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a frequency shifter to the device of Swanson as per Tearney, the motivation being that the frequency shifter is necessary to shift the intermediate frequencies as is required when performing measurements of an entire cavity via the rotation of the measurement probe (see Col. 13, lines 25-37 of Tearney).

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson (5,956,355) in view of Tearney et al (6,134,003) and in further view of Faxvog et al (4,601,036).



As for claim 32, the combined device discloses the claimed invention as set forth above regarding claim 31, but fails to disclose the spectral filter including a polygon scanner and a spectral separating arrangement.

Faxvog (Fig. 1) discloses a rapidly tunable laser that features a rotating polygonal solid with a Littrow reflective grating on one face (see abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rotating polygonal solid with a Littrow reflective grating to the

combined device as per Faxvog, the motivation being that the rotating polygon with a Littrow grating enables the laser to be tuned through more than two wavelengths quickly and efficiently.

Claims 46-54 and 56-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tearney et al (6,134,003) in view of Swanson (5,956,355).

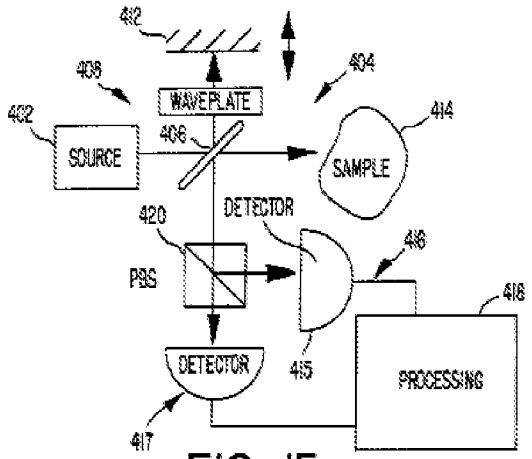


FIG. 15

Regarding claims 46-47 and 69-70, Tearney (Fig. 15) discloses an apparatus (claim 46) and corresponding method (claim 69), the method and apparatus comprising at least one first arrangement 2 providing at least one first electro-magnetic radiation to a sample 14 and at least one second electromagnetic radiation to a reference 12 (also per claims 47 and 70); at least one second arrangement 415 detecting a first interference signal in a first polarization state; and at least one third arrangement 417 for detecting a second interference signal in a second polarization state, the first and second polarizations being difference due to the light being split by polarizing beam splitter 420.

This embodiment of Tearney, however, fails to disclose the use of a tunable light source.

Figure 17 of Tearney discloses a different embodiment with frequency tunable source 702. Further, Swanson (Fig. 1) discloses an optical measuring system featuring tunable laser 14.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a tunable light source in the device of Tearney as per Swanson, the motivation being that tuning the light source will allow for multiple wavelengths to be used for measuring a sample in the same object while only requiring a single light source.

As for claim 48, Tearney further discloses in the embodiment of Figure 4 frequency shifter 124 disposed in the reference beam path. It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a frequency shifter to the combined device, the motivation being that the frequency shifter is necessary to shift the intermediate frequencies as is required when performing measurements of an entire cavity via the rotation of the measurement probe (see Col. 13, lines 25-37 of Tearney).

As for claim 49, Tearney further discloses processing means 418 that inherently is capable of generating an image.

As for claims 50-51, Tearney further discloses in the embodiment of Figure 4 probe 34 that is capable of transverse scanning (see the horizontal arrow near the probe in the figure).

As for claim 52, the combined device sets forth the invention as disclosed above regarding claim 46; however, it fails to disclose the use a non-reflective reference.

In one embodiment of Swanson (that of Figure 4), a partially transmissive reference 44 is employed as a functional equivalent to the fully reflective reference reflector of the embodiment of Figure 1. At the same time, both a non-reflective reference flat with a mirror located behind it in a Michelson interferometer arrangement, or a Mach-Zehnder interferometer arrangement with a transmissive reference arm, operate as non-reflective reference surfaces in a functionally equivalent manner to the embodiment set forth by Figure 1 of Swanson.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a non-reflective reference in the device of Swanson, the motivation being that the use of a non-reflective reference surface is functionally equivalent to using a reflective reference surface, and the same results will be generated by the use of each.

As for claim 53, the combined device discloses the claimed invention as set forth above regarding claim 46, but fails to disclose the specifics of the variation of the spectrum of the light source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the spectrum variation of the light source to the specifications of the instant claims, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As for claim 54, see element 200 in Figure 4, or Figures 2 and 2a of Swanson, the motivation for incorporating this element being the same as that in claim 46.

As for claim 56, the abstract of Swanson further discloses the use of a gain medium.

As for claim 57, see processor 418 and PBS 420 of Tearney.

As for claim 58, see detectors 415, 417 of Tearney; see also detector 50, A/D and signal processing 22 of Swanson.

As for claims 59-60, the combined device discloses the claimed invention of claim 58, but fails to disclose the operational ranges of the electrical filter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set the electrical filter to the operational profile of the instant claims, sine it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

As for claim 61, the disclosed embodiment of the combined device sets forth the invention as disclosed above regarding claim 50, but fails to disclose the probe having a rotary junction and a fiber-optic catheter.

Tearney, however, discloses an interferometeric system in Figure 4 with a rotation mechanism 135 and a fiber-optic catheter 54.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a rotation enabled fiber-optic catheter as per Tearney in the device of Swanson, the motivation being that the catheter will allow for both rotational and longitudinal scanning of an object being measured, and therefore both rotational and longitudinal scanning of an image (Tearney abstract).

As for claim 62, the combined device sets forth the invention of claim 61, but fails to disclose the rotation speed of the catheter. It would have been obvious to one having ordinary skill in the art at the time the invention was made, however, to set the rotation speed to be higher than 30 revolutions per second, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As for claim 63, Tearney further discloses Faraday rotators 130 in the embodiment of Figure 4 as a polarization modulator.

As for claim 64, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 65, Tearney discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

As for claim 66, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417.

As for claim 67, Tearney further discloses polarizing beam splitter 420 that separates the polarization into its orthogonal components; one component is detected at detector 415, the other at detector 417, and also further discloses the use of a dual balanced receiver (Col. 6, lines 20-26).

As for claim 68, Tearney inherently discloses a third arrangement for tracking the phase difference between the third and fourth electromagnetic radiations; the interference patterns detected by Swanson are generated by the phase differences between the light beams due to the optical path differences each light beam travels among other effects, making tracking the phase differences a natural part of the interference pattern detection.

Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tearney et al (6,134,003) in view of Swanson (5,956,355) and in further view of Faxvog et al (4,601,036).

As for claim 55, the combined device discloses the claimed invention as set forth above regarding claim 31, but fails to disclose the spectral filter including a polygon scanner and a spectral separating arrangement.

Faxvog (Fig. 1) discloses a rapidly tunable laser that features a rotating polygonal solid with a Littrow reflective grating on one face (see abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add a rotating polygonal solid with a Littrow reflective grating to the combined device as per Faxvog, the motivation being that the rotating polygon with a Littrow grating enables the laser to be tuned through more than two wavelengths quickly and efficiently.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. LYONS whose telephone number is (571)272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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